Ramón Gómez-Moreno, PhD

Medical Laboratory Scientist (MLS) Board of Certification Candidate of ASCP
School of Health Professions
UPR Medical Sciences Campus
San Juan PR

Cell phone: 787-439-5378
E-mail:ramon.gomez@upr.edu
ramon.gomez.moreno1@gmail.com
US citizen

EDUCATION

PhD	2018	**Biochemistry**, Department of Biochemistry, Biomedical Sciences Graduate Program, School of Medicine, UPR Medical Sciences Campus, San Juan PR, USA 00936-5067
BS (*Cum laude*)	2011	**General Biology**, Department of Biology, UPR Bayamón Campus, Bayamón, PR, USA 00959

PROFESSIONAL

- **Ignite Biotechnology Summer Program**
  Date: June 2017
  Supervisor: Eduardo Canto, MD
  Contact information: eduardoicanto@yahoo.com
  Position: Proctor and mentor
  - Teach and trained, high school students and teachers, in mammalian cell culture for protein expression, ELISA, PCR, and other biotechnology areas.

- **UPR Medical Sciences Campus, Department of Biochemistry, San Juan PR 00936**
  Date: August, 2011 – December, 2018
  Thesis mentor: Abel Baerga Ortiz, PhD
  Contact information: abel.baerga@upr.edu / 787-467-0230
  Position: Research associate
  - Developed and patented PCR detection method to associate several genotoxic and pro-inflammatory bacterial genes in healthy, adenoma, and colorectal cancer (CRC) stool samples from US and PR

- Adapted the Oligotype software to detect nucleotide variants in reads obtained from amplicon sequencing (Illumina platform) from healthy, adenoma, and CRC stool samples.
- Expressed and purified several recombinant proteins (acyl carrier proteins and thioesterase) that were used to capture small molecules from extracts obtained from a genotoxic strain (*pks*+) of *E.coli* and its mutant strain. Incubated proteins were then digested and analyzed (peptide mapping) by MALDI-TOF-TOF mass spectrometry.
- Produced a mutant strain of *pks*+ *E.coli* strain that was used to study the inflammatory response (cytokine expression), DNA damage (phosphorylation of histone H2AX), and cell morphology (DAPI and phalloidin staining) in human monocyte-derived macrophages from peripheral blood and HeLa cells.

- **EQ Labs, Inc Bayamon, Puerto Rico 00959**
  Division of Microbiology
  Date: April 1, 2011 – August 1, 2011
  Supervisor: Virginia Valcourt Cruz, BS, MT (ACSP), MPH
  Contact information: 787-288-6437
  Position: Laboratory technician
  - Maintained and calibrated laboratory equipment (e.g. MilliQ water system, autoclave, etc) and prepared bacteria growth medium.
  - Performed bioburden of autoclave and other materials.

- **UPR Rio Piedras Campus, San Juan, Puerto Rico 00931**
  Date: August, 2009 – May, 2010
  Supervisor: Javier Avalos, PhD
  Contact information: javier.avalos@upr.edu
  Position: Undergraduate researcher in microbiology
  - Characterized the antibacterial properties of novel nanomaterial synthetized in the laboratory.
  - Growth bacteria obtained from ATCC.
  - Performed antibacterial testing by measuring the optical density (OD) of bacteria treated with the nanomaterials in liquid growth medium.
  - Inoculated the surface of the nanomaterials with bacteria. Swab the nanomaterials to analyze the recovery of inoculated bacteria in agar growth medium.

- **University of Iowa Carver College of Medicine, Iowa City, IA 52242**
  Department of Microbiology
  Date: Summer 2009
  Mentor: Michael Apicella, MD
  Contact information: michael.apicella@uiowa.edu / 319-335-7807
  Position: Undergraduate researcher in microbiology

- Studied the expression of lipooligosaccharide (LOS)-containing phosphorylcholine (Chop) in Nontypeable *Haemophilus influenza* (NTHI) after an *in vivo* nasopharyngeal colonization experiment.
- Perform colony immunoblots to study the expression of ChoP in NTHI isolates from an *in vivo* nasopharyngeal colonization experiment.
- Extracted DNA from NTHI isolates and perform PCR to amplify the *lic-1* gene involve in controlling the expression of LOS.
- Performed Sanger's DNA sequencing method of the *lic-1* gene PCR product. To analyze deletion or insertion of "CAAT" tandem repeats in the *lic* operon that controlled the expression of LOS.

SKILLS:

- Research project managing.
- Research training and mentoring of undergraduate, graduate students, and medical residents.
- Bilingual (Spanish and English).
- Statistical analysis using GraphPadPrism.
- Basic bioinformatics skills (NCBI and EMBL-EBI)
- Mmass software
- **Protein production:**
    - Development of fermentation strategies to optimize recombinant protein expression in *E.coli*.
- **Recombinant protein purification methods:**
    - Development and optimization of Nickel-Nitrilotriacetic acid (Ni-NTA) and Fast Protein Liquid Chromatography (FPLC) methods to purify recombinant proteins.

- **Protein detection and quantification methods**:
    - SDS-PAGE, UV-spectrophotometry, western blots, immunoblots, and ELISA methods to detect and quantify proteins.

- **Mammalian cell culture**:
    - HeLa cells and human monocyte-derived macrophages primary cell cultures for infection assays.
    - Mammalian cell staining with Giemsa, DAPI, and Phalloidin to study the biological effect of bacterial proteins and *E.coli* organic extracts.
    - DNA damage (western blots) and cytokine expression (ELISA) to study the biochemical effect of bacterial proteins and *E.coli* organic extracts.

- **MALDI-TOF-TOF mass spectrometry:**
    - Full proteins and trypsin-digested proteins for peptide mapping.
    - Detection of post-translational modifications.
    - Identification of unknown protein and contaminants.
    - Structural features.

- **DNA manipulation techniques:**
    - PCR manipulation to delete and clone genes in *E. coli* for genetic and metabolic engineering experiments.
    - PCR amplicon insertion in protein expression plasmids and bacterial transformation.
    - Manipulation of PCR amplicons to generate DNA libraries (plasmids and double-strand DNA) for Next Generation DNA sequencing and Sanger's DNA sequencing methods.
    - Agarose electrophoresis of plasmids, double-stranded DNA, and RNA.

- **Clinical research/case-control study:**
    - Handling stool samples obtained from study participants.
    - Bio-banking management.
    - Nucleic acid extraction and quantification.
    - Development of a patented PCR assays (or nucleic acid testing) to detect and quantify bacterial genes in stool samples and other clinical samples.
    - Statistical analysis, ROC curves, and IRBs.

AWARDS:

- National Institute of Allergy and Infectious Diseases (NIAID) Intramural Research Opportunities (INRO) Program **travel award** from February 6-9, 2017 at NIH, Bethesda, Maryland.
- Certificate of achievement from the UPR Medical Sciences Campus, School of Medicine, Biomedical Sciences Graduate Program for achieving the **Dean's list** during the academic year 2014-2015, May 8, 2015.
- Certificate of achievement from the UPR Medical Sciences Campus, School of Medicine, Biomedical Sciences Graduate Program for **achieving excellence in scientific research** during the academic year 2014-2015, May 8, 2015.
- **Best Porter Presentation Award (First place)** at the 34to "Foro Anual de Investigación y Educación del recinto de Ciencias Médicas de la UPR" from April 9-11, 2014. Poster tittle: Quantitative Detection of Bacteria Pro-Inflammatory Genes Directly in Human Stool Samples.

- Certificate of achievement from the UPR Medical Sciences Campus, School of Medicine, Biomedical Sciences Graduate Program for **achieving academic excellence** during 20132014 and first semester of 2014, May 16, 2014.
- American Association for the Advancement of Science (AAAS), Caribbean Division Annual Conference **Robert I. Larus Award for Best Poster Presentation** September 21, 2013. Poster title: Development of a quantitative assay for pro-inflammatory genes directly in human stool samples by real-time Polymerase Chain Reaction (rtPCR).
- Certificate of achievement from the UPR Medical Sciences Campus, School of Medicine, Biomedical Sciences Graduate Program for **achieving excellence in scientific research** during 2011-2012 and first semester of 2012-2013, May 9, 2013.
- University of Puerto Rico Medical Sciences Campus, National Institute of Health (NIH) MBRS-RISE **pre-doctoral training fellowship award** (NIH grant R25-GM061838) from September 1, 2012 to August 31, 2017**.**

POSTER AND ORAL PRESENTATIONS:

- **Speaker: Pro-inflammatory and genotoxic bacterial genes as a risk factor for colorectal cancer.** Semiannual Meeting of the Puerto Rico Society for Microbiologist. Medical Technology Association of Puerto Rico, Guaynabo, PR 00969, January 25, 2019. **Contact Person:** Rafael Tosado Acevedo, PhD (Cel. 787-344-3429 / e-mail: rtosado@gmail.com).
- **Speaker: The intestinal microbiota: Possible biomarkers for the development of laboratory-developed test (LD) for molecular diagnostics of intestinal diseases**. CorePlus Clinical and Pathological Laboratory Services, Carolina, PR 00983, June 5, 2018. **Contact Person:** Kareni Perez, PhD, MT(ASCP) (Cel. 787-244-0016 / e-mail: kareni.perez@corepluspr.com).
- **Invited speaker** for the technology transfer seminar series: **Fundaments and strategies of conventional and quantitative Polymerase Chain Reaction (PCR)**. Turabo University, Gurabo PR, USA 00926, June 28, 2017. **Contact person:** Jose R Perez Jimenez, PhD (Cel. 787-2194092 / e-mail: ut_jperezjm@suagm.edu).
- **Speaker** for seminar series: **Pro-inflammatory and genotoxic bacterial genes in the intestinal microbiota as a risk factor for colorectal cancer**. UMET, San Juan PR, USA 00926, May 5, 2017. **Contact person:** Jonathan A. Lopez Colon, MS (Cel. 787-6714476 / e-mail: alfredo_lcpr@hotmail.com).
- **Ramon Gomez Moreno**, Sonnieliz Cotto Ríos, Yermary Morales Lozadas, José A. Lasalde Dominicci & Abel Baerga Ortiz. **Biological characterization of the genotoxic *pks island* in human monocyte-derived macrophages from peripheral blood**. Poster Presentation. Lilly Academy Technical Forum. March 24, 2017. San Juan PR, USA.

- **Speaker** for the Microbiology Student Chapter of the American Society for Microbiology (CESMI) at UPR Bayamón Campus, Bayamón PR, USA 00959-1919. Conference title: **Towards a PhD Degree in Biochemistry: My Academic story**. October 21, 2016. **Contact person:** Dianedis Toro Nieves, PhD (dianedis.toro@upr.edu).
- **Ramon Gomez Moreno**, Maria Gonzalez Pons, Ananda Sen, Dean E Brenner, A. Murat Eren, Marcia Cruz-Correa, & Abel Baerga Ortiz. **Association of Genotoxic and ProInflammatory Bacterial Genes**. Poster Presentation. PR Forward Research and Innovation Summit. September 17, 2016. San Juan PR, USA.
- **Ramon Gomez Moreno** & Abel Baerga Ortiz. **Trapping Biosynthesis Intermediates of the *pks island* by Genetic Engineering**. Poster Presentation. Lilly Academy. May 6, 2016. PR Convention Center, San Juan PR, USA.
- **Ramon Gomez Moreno** & Abel Baerga Ortiz. **Trapping Biosynthesis Intermediates of the *pks island* by Genetic Engineering**. Poster Presentation. Poster Presentation. INTERPHEX-PR. October 21, 2015. San Juan PR, USA.
- **Ramon Gomez Moreno** & Abel Baerga Ortiz. **Prevalence of Pro-inflammatory Bacterial Genes Detected Directly from Colorectal Cancer Human Stool Samples**. Poster Presentation. ASM 115th General Meeting. May 30 - June 2, 2015. New Orleans, Louisiana, USA**.**
- **Speaker** for the Student Chapter of the American Society for Microbiology (CESMI): **Finishing your Bachelor of Science, Now What? The PhD Option**. UPR Bayamón Campus, Bayamón PR, USA 00959-1919. November 7, 2016. **Contact person:** Dianedis Toro Nieves, PhD (dianedis.toro@upr.edu).

PROFESIONAL ACTIVITIES:

- **Investigator Training Program in Clinical Research Certificate** sponsored by Pfizer and the Puerto Rico Consortium for Clinical Investigation. Abril 6, 2018 at Puerto Rico Science, Technology, and Research Trust.
- **Science communication:** Write a newspaper column in “El Nuevo Dia” newspaper tittle: “La importancia de los microbios”, February 17, 2018.
- **Science communication:** Write a newspaper column in “El Nuevo Dia” newspaper tittle: “Los Sheldon Cooper de la vida”, November 18, 2017.
- NIH Clinical Center: **Clinical and translational research course for PhD students**, from July 10 to July 22, 2017, at Bethesda, Maryland, USA 20814.
- Fostering Ideas State Entrepreneurship (I-Trep) summer course in **biomedical entrepreneurship** (NIH grant R25-GM116701) from June 15 to June 23, 2017. University of Vermont, Burlington, VT, USA 05405.

- **Judge** of 3rd Cell and Molecular Biology Meeting of the American Society for Biochemistry and Molecular Biology student chapter of UPR Rio Piedras Campus, November 3, 2016, Rio Piedras, PR 00931.
- **Judge** of the BIOExpo, May 24, 2016, Department of Biology, UPR Bayamon Campus, Bayamón, PR 00959-1919.
- **Judge** of the Regional Scientific Fair, February 9, 2016, at the PR Metropolitan Science Fair, San Juan PR.
- **Voluntary work** for the Chemistry Festival of the American Chemical Society, October 26, 2014, in San Juan PR.
- **Judge** of the 32th Archdiocese Regional Scientific and Engineering Fair. March 12, 2013, in San Juan PR.

PUBLICATIONS:

- **Gómez-Moreno, R.**, Gonzalez-Pons, M., Sen, A., Brenner, D.E., Murat Eren, A., CruzCorrea, A. & Baerga-Ortiz, A. 2019. The presence of gut microbial genes encoding bacterial genotoxins or pro-inflammatory factors in stool samples from individuals with colorectal neoplasia. **DOI: 10.3390/diseases7010016**.
- Roche-Lima, A., Carrasquillo-Carrion, K., **Gómez-Moreno, R.**, Cruz, JM., VelazquezMorales, DM., Rogozin, IB & Baerga-Ortiz, A. 2018. The Presence Of Genotoxic and/or ProInflammatory Bacterial Genes in Metagenomic Databases and their Possible Link with Inflammatory Bowel Diseases. Frontiers in Genetics: Bioinformatics and Computational Biology. **DOI: 10.3389/fgene.2018.00116**.
- **Gómez-Moreno, R.**, Robledo, I. and Baerga-Ortiz, A. 2014. Direct Detection and Quantification of Bacterial Genes Associated with Inflammation in DNA Isolated from Stool. Advances in Microbiology. **DOI: 10.4236/aim.2014.415117**.
- Cunci, L., Martinez Vargas, M., Cunci, R., **Gómez-Moreno, R.**, Perez, I., Baerga-Ortiz, A., Gonzalez, C.I. & Cabrera, C.R. 2014. Real-Time Detection of Telomerase Activity in Cancer Cells using Label-Free Electrochemical Impedimetric Biosensing Microchip. Royal Society of Chemistry Advances. **DOI: 10.1039/C4RA09689D**.
- Medina, O., Nocua, J., Mendoza, F., **Gómez-Moreno, R.**, Avalos, J., Rodriguez, C. & Morell, G. 2012. Bactericide and bacterial anti-adhesive properties of the nanocrystalline diamond surface. Diamond & Related Materials. **DOI: 10.1016/j.diamond.2011.12.022**.
- **Gómez-Moreno, R.**, Perez-Santiago, J., Martinez-Ramirez, R & Baerga-Ortiz, A. Oligotyping analysis of gut bacterial genes previously associated with inflammation and colorectal neoplasia. **Manuscript in preparation**.
- Morales-Lozada, Y., **Gómez-Moreno, R.**, Baez-Bravo, G., Diaz-Cartagena, D.C. & Baerga-Ortiz, A. Bacterial outer membrane vesicles mediate genotoxic effects of the pks island genomic island. **Manuscript in preparation.**

- Morales-Lozada, Y., **Gómez-Moreno, R.**, Baez-Bravo, G., Robledo, I., Suazo, D., Cabrera, C.R. & Baerga-Ortiz, A. Bacterial morphologies associated with the pks genomic island. **Manuscript in preparation**.

INTELECTUAL PROPERTIES (PATENTS):

- Baerga-Ortiz, Abel, **Gómez-Moreno, Ramón**, Cruz-Correa, Marcia R., González-Pons, María del Mar. A stool test for colorectal cancer risk assessment. **United State Trademark and Patent Office: US No. 65/516,900 (filed June-08-2017).**